

ABSTRACT OF THE DISCLOSURE

In a roller chain transmission, the diameter D of the rollers, the outer diameter d of the pins, and the height H of the inner plates satisfy the relationships $0.72P \leq D \leq 0.79P$, $0.40P \leq d \leq 0.44P$, and $0.96P \leq H$, with respect to the chain pitch P. The radius r of the arc of the tooth gap bottom of the sprocket teeth satisfies the relationship $0.505D \leq r \leq 0.505D + 0.069^3\sqrt{D}$. The transmission chain exhibits high durability due to improved strength and wear resistance under high loads.